

YELLOW FEVER ON UNITED STATES STEAMER PLYMOUTH.

LETTER

FROM

THE SECRETARY OF THE NAVY,

IN REPLY TO

A resolution of the House of Representatives in relation to the breaking out of the yellow fever on the United States steamer Plymouth.

APRIL 12, 1879.—Referred to the Select Committee on the Origin, Introduction, and Prevention of Epidemic Diseases in the United States and ordered to be printed.

NAVY DEPARTMENT, April 11, 1879.

SIR: I have the honor to acknowledge the receipt of the following resolution adopted by the House of Representatives on the 8th instant, to wit:

Resolved, That the Secretary of the Navy of the United States be requested to furnish this House with all available information regarding the breaking out of the yellow fever on the United States ship Plymouth, and what sanitary measures, if any, had been carried out to prevent the breaking out and spread of said disease on board of said ship.

The documents herewith communicated contain all the official information in possession of the department in reference to the recent appearance of yellow fever on the Plymouth. They are:

1. Letter of Surgeon Theoron Woolverton, dated March 23, 1879, notifying Capt. D. B. Harmony, commanding the Plymouth, that the yellow fever had broken out on board.
2. Letter of Captain Harmony to the department, dated April 2, 1879, communicating the facts in relation to the sanitary measures adopted with reference to the Plymouth, and further facts bearing upon the appearance of the disease.
3. Letter from Dr. Woolverton to the Surgeon-General of the Navy, giving further and more minute details.
4. Letter from Capt. I. Young, commanding the Portsmouth navy-yard, reporting the arrival of the Plymouth at that station.

From these reports it will appear that in consequence of the yellow fever having broken out on the Plymouth during the month of November last, she was subjected to all the ordinary methods of purification during the past winter in the port of Boston. The opinion generally prevails among experienced naval men that the freezing process is sufficient protection against the reappearance of the yellow fever after it has once appeared on board a vessel. There are instances where it has

resulted otherwise, although they have not been sufficiently numerous to entirely destroy this opinion. Acting under this general belief the Plymouth was sent to Boston, and again to sea after the close of the winter, with the conviction that she had been sufficiently frozen and fumigated to prevent a recurrence of the disease. It seems, however, that such was not the fact, and the question why it was not is now under investigation by a board of competent and experienced surgeons, who have been detailed for that purpose, and whose report will probably be made in a few days. It is expected they will give their professional opinion upon all the questions involved.

The remarkable fact that the disease broke out at the precise point in the ship where it appeared in November last, may be supposed to weaken somewhat the theory that the freezing process is a reliable remedy. And yet it is proper to say that, as this process has heretofore been considered in so great a degree reliable, a single example cannot be sufficient to entirely overthrow the presumptions in its favor. The department will continue to resort to it in all cases, but will, at the same time, add to it all other known sanitary remedies, as well as such others as additional investigations may discover. It may be assumed to be true that, without proper ventilation and cleanliness, it will be impossible to keep any ship in a healthy condition, on account of the foul air which collects in their holds and necessarily generates some form of disease; and yet it is confidently believed that ours are the best ventilated and cleanest ships in the world. Whether the yellow fever can be thus generated it must be left to science to decide; but, at all events, it is certain that it will always prove more fatal where the ventilation is not good than where it is sufficient to purify the air. Experiments are now being made with several methods of ventilation, some of which promise good results, and they will be continued within the means of the department until some satisfactory plan shall be discovered. There is no special fund set apart by Congress for this purpose, and consequently the department is somewhat limited in the sphere of its investigations. Within that sphere, however, it will omit nothing in its power to make its experiments as thorough as possible.

If the yellow fever be the result of an existing germ or poison in some of the lowest forms of animal or vegetable life, which conceals the seeds of the disease until developed by the action of heat, it will become most important to science to discover not only what the germ or poison is, but how it may be destroyed before development. If it cannot be destroyed by either severe heat or severe cold, or by the ordinary process of fumigating, or by chlorine gas, or by some of the other known methods of putting an end to animal and vegetable life, it will become one of the most important sanitary questions of the future to decide in what other manner the development of this destructive germ or poison is to be avoided and its consequences escaped. In the mean time, whatsoever experiments either experience or science may suggest should be tried, in order that nothing shall be omitted to arrest the progress and ravages of this terrible scourge.

Possibly if the Plymouth had been exposed to a lower temperature of cold, and had remained so for a longer time, the disease might not have reappeared upon her. As it was, the degree of cold was increased beyond what it would be during an ordinary winter in the latitude of Boston, and was supposed to be sufficient, in view of the additional fact that the ship was thoroughly fumigated. It is, consequently, worthy of experiment to make additional tests as to the effects of both cold and heat, and all the forms of disinfectants, for at last science and experi-

ments must come to the aid of each other in the discovery of satisfactory and effective remedies.

The Plymouth is now in quarantine and will remain so until all signs of the fever disappear. Her crew generally remain healthy and the survivor of the two attacked at sea is convalescing. The further spread of the disease on board of her is not at present feared by her officers, although it has been decided that she will not be again sent, during the present season, into the tropical waters, where, in the opinion of Dr. Woolverton, the disease would be liable to break out again, an opinion which seems to be founded upon the fear that the germ or poison, whatever it is, has not yet been entirely destroyed. If it be true, as he supposes, that this germ or poison has found a lodgment in the decayed timber, then it will become necessary to discover and remove it by substituting sound timber in its place, and prosecuting such microscopic tests with the decayed particles as may, by possibility, lead to a discovery of what the cause of the disease is and the best method of destroying it. It is impossible to prevent the decay of timber in ships, although, by various processes, it may be, in some degree, preserved. The only remedy, therefore, is to remove it, which, if experience shall show that it may contain the seeds of contagious diseases, must be done at whatever cost, or the ships must be abandoned whenever any of their decayed parts shall be found to contain the infectious poison.

I have the honor to be, very respectfully,

R. W. THOMPSON,
Secretary of the Navy.

Hon. S. J. RANDALL,
Speaker of the House of Representatives,
Washington, D. C.

1.—*Surgeon Woolverton to Captain Harmony.*

UNITED STATES SHIP PLYMOUTH, SECOND RATE,
At sea, latitude 27° 40' north, longitude 59° 59' west,
March 23, 1879.

SIR: I regret to inform you that two of the crew have been taken suddenly and violently sick with all the symptoms of yellow fever—one, Richard Saunders, machinist, yesterday morning, and the other, Peter Egan, boatswain's mate, last night.

In my opinion it would be dangerous to the health of the ship to proceed further on this cruise.

Very respectfully, &c.,

THEORON WOOLVERTON,
Surgeon United States Navy.

Captain D. B. HARMONY, U. S. N.,
Commanding U. S. S. Plymouth.

2.—*Captain Harmony to the Secretary of the Navy.*

UNITED STATES SHIP PLYMOUTH, SECOND RATE,
Wood's Holl, Mass., April 2, 1879.

SIR: I have the honor to report the arrival of this ship at this port, having turned back, on our passage to Guadeloupe, on Sunday, March

23, in latitude 27° north, in consequence of two cases of yellow fever having broken out and determined as such on that date.

While in Boston every means known to sanitary science had been used to disinfect the ship of the germs of yellow fever. She was entirely broken out, all stores of any kind landed and placed in rooms exposed to a freezing temperature, the ship thoroughly fumigated several times by burning large quantities of sulphur at different times on berth-deck, store-rooms, and in officers' apartments. All fires were extinguished, and the vessel exposed to the severe temperature of the past winter for over six weeks. Part of the time the ship was in dry-dock, where large quantities of ice remained, and the temperature frequently reached a point below zero. The water in the tanks and in buckets placed in the store-rooms was constantly frozen during that time, and even after the ship was taken out of dock and fires had been lighted under one of the boilers to heat the ship, she was so thoroughly chilled for several days that water froze in the bilges. All the men in the crew, who showed any signs of weak constitutions, or of being susceptible to climatic influences, were sent to the hospital; and we had every reason to believe the ship was in a condition to resist anything like a renewal of the disease (yellow fever) which brought her home last November.

On the 19th of March we had a severe gale from the southwest going into northwest, which involved the necessity of battening down hatches for about twelve hours.

The following day some fifteen men applied for treatment at the sick-bay, most of them with bronchitis and catarrh. The weather then was very pleasant and warm. On the 22d Richard Sanders, machinist, an apparently strong and healthy man, applied to the surgeon for treatment, having a violent fever. Curious to say, his hammock was slung in the precise place of the man who first showed symptoms of yellow fever in Santa Cruz on November 5. The same night, Peter Egan, boatswain's mate, was attacked with violent fever when he was "turned out" of his hammock to go on watch. It was so violent that he fell two or three times while dressing himself. The following morning the surgeon regarded the symptoms of these two cases as those of yellow fever, and, at two o'clock in the afternoon, so reported them to me in writing, and advised the seeking of a cooler climate. (I inclose a copy of his letter.) I at once ordered the ship headed to the northward, and the next morning got up steam, with full power, and made the best of my way to a cooler temperature. When abreast of Bermuda, finding we were short of coal, and every appearance of a gale of wind coming on, fearing I would have to batten down hatches again, and thus increase the temperature of berth-deck, so the fever would be further developed, I ran into port, procured sufficient coal to bring the ship to a northern port, remaining thirty-six hours, left and steered for Martha's Vineyard Sound, making all the speed possible under steam and sail.

This breaking out of the fever in the open ocean with a temperature of very little above 70° I regard as a most remarkable circumstance, especially after the thorough freezing the ship went through while in Boston Harbor. The health officer at Bermuda, an English surgeon, told me of two cases of their own men-of-war which had similar experience. Both of them were affected with fever, were sent to Halifax, spent the whole winter there, and in the spring went south. On their arrival in the latitude but a few degrees below Bermuda, the fever broke out on board of them and they were taken north again, and eventually went to England without serving out their commission.

In our case it is an especially great misfortune, as the ship is in good condition for a cruise of at least eighteen months longer, the officers and crew attached to the ship looking forward with the greatest pleasure to the cruise in the West Indies, from which we have been so unfortunately turned back, to say nothing of our having passed through the stormy latitudes and reached a point where nothing but good weather might be expected until our return in June. It was with the greatest reluctance I changed the course; and nothing but imperative necessity and a due regard for the lives of the people under my charge would have prompted me to act as I have, under the advice of the surgeon. On leaving Bermuda the governor informed me that we would have to carry the pilot with us, as he would not allow him to land.

I brought him with us to this port, and will turn him over to the British consul at the first port we anchor where there is one. Peter Egan, boatswain's mate, died on the 31st of March. We have had a very severe gale for the past two days.

I am, sir, very respectfully, your obedient servant,

D. B. HARMONY,

Captain, U. S. N., commanding U. S. S. Plymouth.

Hon. R. W. THOMPSON,

Secretary of the Navy, Washington, D. C.

Surgeon T. Wolverton to the Surgeon-General of the Navy.

U. S. STEAMER PLYMOUTH, 2D RATE,

Vineyard Sound, Mass., April 2, 1879.

SIR: I have the honor to submit, for your information, the following report relating to the sanitary condition of this vessel:

On the 7th of November last there were sent to the civil hospital at Fredericstaed, Santa Cruz, four cases of yellow fever, and the ship sailed for Norfolk. On the evening of the same day, the 7th, three additional cases presented themselves; they all ran a mild course, and were convalescent by the time we reached Norfolk, in a week. The disease first appeared at Santa Cruz in the person of Bianchi, a marine berth-deck cook, who had not been on shore since the ship had left the United States.

The Plymouth lay in quarantine at Portsmouth, N. H., for seventeen days, and then went to Boston for some necessary repairs and to be broken out and frozen out.

During the time she was at Boston, from December 19, 1878, to March 15, 1879, everything was removed from the ship, the crew was transferred to the receiving ship, and she remained fully exposed to intense cold for a month—for ten days in dry-dock with a temperature at times below zero. The water in the tanks was frozen, as it was in basins put into the storerooms of the ship, and, for several days after the fires were rebuilt on board, the cold continued so great that the water froze in the bilges at night. In addition, one hundred pounds of sulphur were burned below decks, the fumigation extending over two days, and the berth-deck, holds, and storerooms were thoroughly whitewashed with a mixture of lime and chloride of lime.

On March 15, 1879, the Plymouth left Boston for a cruise to the Windward Islands, &c. On the night of the 19th, in a severe gale of

wind, the hatches had to be battened down, and the berth-deck became very damp and close. On the morning of the 22d, Richard Sanders, machinist, was sick, but did not report until afternoon, when he had violent headache and fever. During the night of the 22d Peter Eagan, boatswain's mate, was taken suddenly and violently sick with the same symptoms. On the 23d, these cases showing decided signs of yellow fever, I addressed the following letter to Capt. D. B. Harmony, commanding:

AT SEA, Lat. N. 27.48, Long. W. 59.59.

SIR: I regret to inform you that two of the crew have been taken suddenly and violently sick, with all the symptoms of yellow fever—one, Richard Sanders, machinist, yesterday morning, and the other, Peter Eagan, boatswain's mate, last night. In my opinion it would be dangerous to the health of the ship to proceed further on this cruise.

And I made the following recommendations:

That hot coffee be served to the watch at midnight, upon turning out.

That the men be allowed to sleep on deck under cover until the weather grows cooler.

That the crew be obliged to change damp clothing at once, upon occasion.

The ship's course was changed for northward. The two sick men were isolated in the sick-bay, no one seeing them but the medical officers and the nurses. The berth-deck was again fumigated with sulphur and all bedding aired. Fortunately no new case appeared after the ship turned, and we soon reached a temperate climate. Our maximum temperature on deck had been 77°.

The men passed through the fever pretty favorably, and Sanders was convalescent about the seventh day; but Eagan, who was an old man, fell into a typhoid condition, and died March 31st. The weather at sea was, also, rough and unfavorable for his recovery.

Eagan was buried April 1. April 2, Sanders was temporarily removed from the sick bay, and it was very thoroughly fumigated and scrubbed. All the bedding that had been used, and the clothing that might have become infected, were thrown overboard. There has been no case of yellow fever in any man employed below the berth-deck, Sanders having been taken sick in hammock. All the cases, with the exception of Eagan, who berthed near the fore hatch, have occurred between the waist of the ship and the wardroom bulkhead on the berth-deck.

I am convinced that the fever infection is confined to the hull of the ship, and especially to the unsound wood about the berth-deck, and that while the Plymouth is a safe and healthy ship in a temperate climate, she cannot, for the present, be sent into a tropical climate without the certainty of an outbreak of yellow fever occurring on board, and that no precautionary measures whatever could avail to avert such a result.

The ship's stores were exposed to cold in Boston during the winter; the provisions were put on board there before our departure. I presume they might be removed from the ship with safety, if it should be considered desirable.

I am, sir, very respectfully, your obedient servant,

THEORON WOOLVERTON,

Surgeon United States Navy.

Surgeon-General J. WINTHROP TAYLOR, U. S. N.,

Navy Department.

4—No. 50.] *Capt. J. Young to the Secretary of the Navy.*

UNITED STATES NAVY-YARD, PORTSMOUTH, N. H.,
Commandant's Office, April 7, 1879.

SIR: I have the honor to report, by letter, the arrival at this station of the United States steamer Plymouth, Capt. D. B. Harmony, commanding. The following extract from his report will show the condition of the ship: "There has not been a new case of fever on board since the 22d ulto. We have had two cases. One man died the 31st; was buried the 1st inst.; the other man is now free from fever, and is rapidly convalescing. All infected clothing was thrown overboard at sea. We will not require the hospital-building for any purpose."

The health-officer of the port has visited the ship, and has placed her in quarantine. In reply to the department's telegrams of the 5th inst., I have to state, as further particulars, that the hospital-building, in its present condition, can accommodate twelve patients comfortably, should it be required to be used.

The United States store-ship Guard is broken out, and is now being cleansed and fumigated, which will require a little time, but could be taken at once to the lower harbor, should the department order it.

I am, sir, very respectfully, your obedient servant,

J. YOUNG,
Captain, Commandant.

The Hon. R. W. THOMPSON,
Secretary of the Navy, Washington, D. C.



